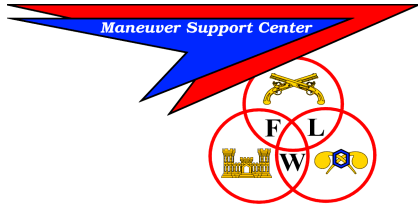


Risk Management

Safety Officer / NCO Course



MANSCEN SAFETY

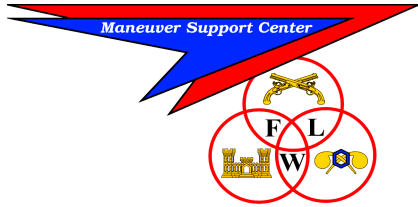


Risk Management Definitions

Risk Management - the process of identifying and controlling hazards to protect the force.

It's five steps represent a logical thought process from which users develop tools, techniques, and procedures for applying risk management in their areas of responsibility.

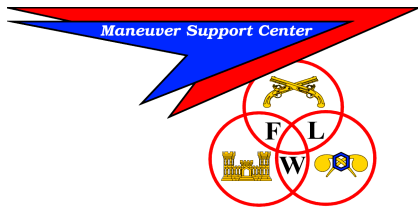
It is a closed-loop process applicable to any situation and environment.



Risk Management Definitions

Hazard - any real or potential condition that can cause injury, illness or death of personnel, or damage to, or loss of equipment or property. (AR 310-25)

Risk - chance of hazard or bad consequences; exposure to chance of injury or loss. (Oxford Dictionary, 1976)



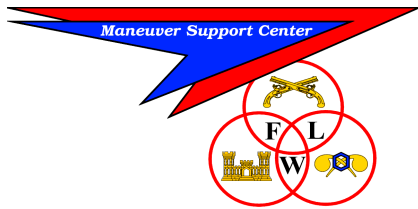
Risk Management Definitions

Risk Assessment - the identification and assessment of hazards (first two steps of the Risk Management process).

Controls - actions taken to eliminate hazards or reduce their risk(s).

--**Educational** (individual & collective training)

--**Physical** (barriers, signs, controller)

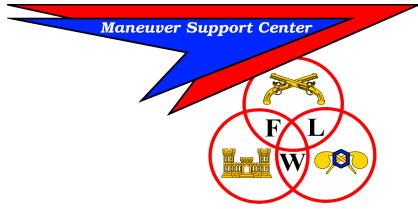


Risk Management Definitions

Risk level is expressed in terms of hazard probability and severity.

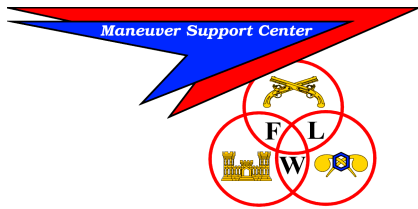
Probability - the likelihood that an event will occur.

Severity - the expected consequence of an event in terms of degree of injury, property damage, or other mission impairing factors (loss of combat power, etc.,) that



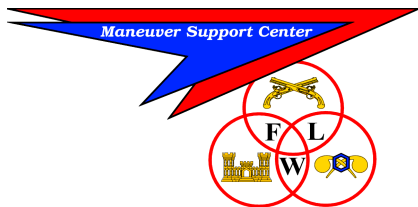
Probability / Severity

- More of an art than a science
- Depends on the use of historical lessons learned, intuitive analysis, experience, and judgement

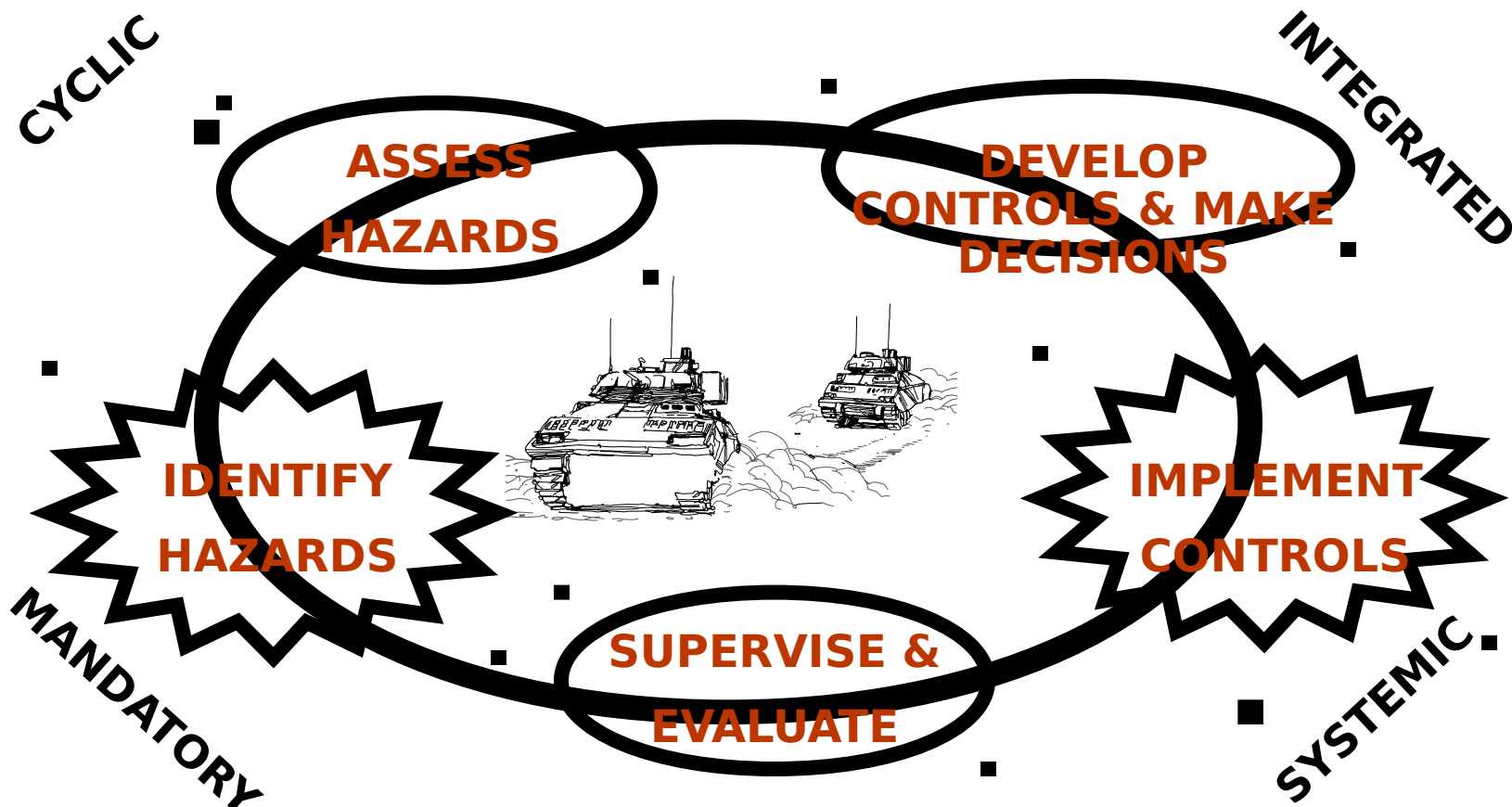


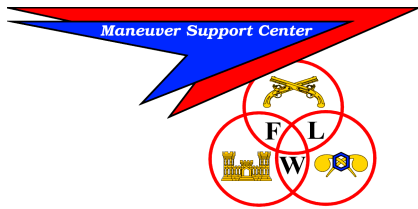
Risk Management Definitions

- **Residual Risk** - the level of risk remaining after controls have been identified and selected.
- **Risk Decision** - the decision to accept or not accept the risk(s) associated with an action made by the commander, leader, or the individual responsible for performing that action.



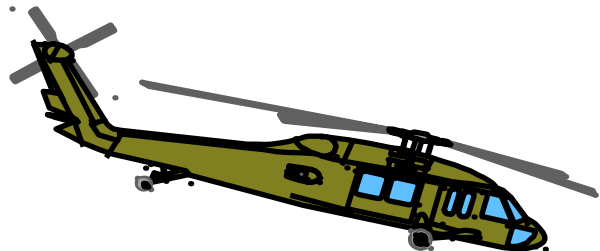
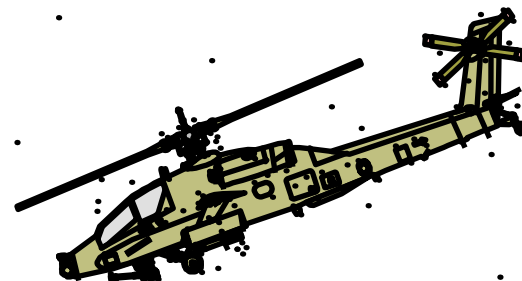
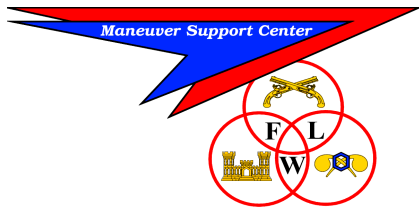
What Is It



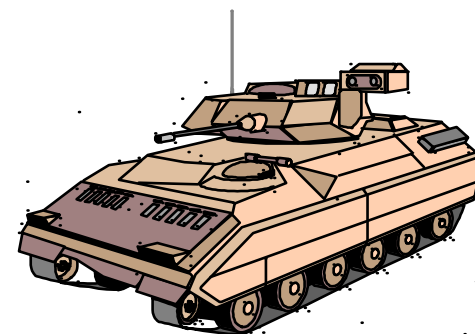
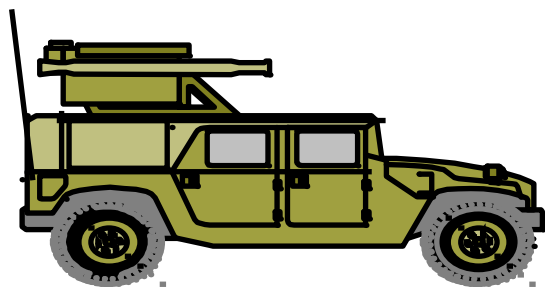
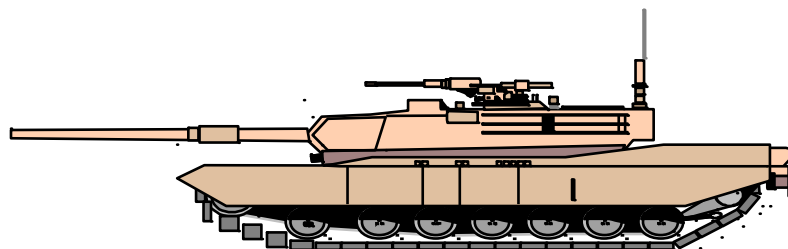


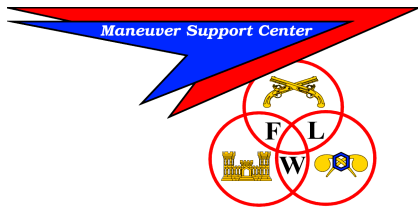
- ...there are inherent risks associated with any military operation.
- The nature of our profession will not allow for either complacency or a cavalier acceptance of risk.
- Leaders at every level have the responsibility to identify hazards, to take measures to reduce or eliminate hazards, and then to accept risk only to the point that the benefits outweigh the potential losses.
- Risk Management is not an add-on feature to the decision-making process but rather a fully integrated element of planning and executing operations.

Dennis J. Reimer
General, USA
Chief of Staff



Responsibilities

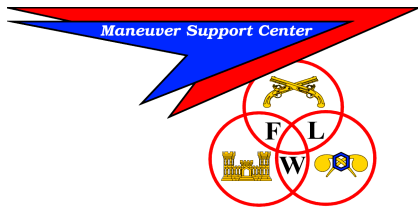




FM 100-14

Risk Management

- Applies across the wide range of Army operations.
- Principles, procedures, and responsibilities to successfully apply risk management process to conserve combat power and resources.
- Applies to both Army and civilian personnel during all Army activities, including joint, multinational, and interagency environments.



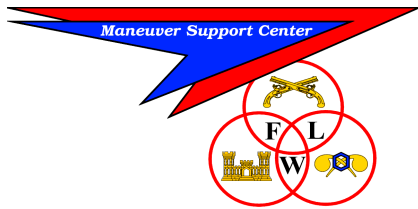
FM 100-5 Operations

Leaders have a special responsibility to subordinates:

They must never risk their soldiers' lives needlessly.

Safety is:

- The third component of protection
- A principle element in everything commanders do - a skill to lessen the risk of sustained high-tempo operations.
- Dependent on strong command and high levels of discipline and training
- A product of enforced standards
- Crucial to successful operations and preservation of combat power

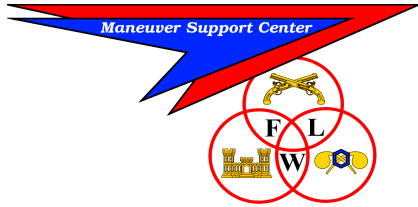


FM 101-5

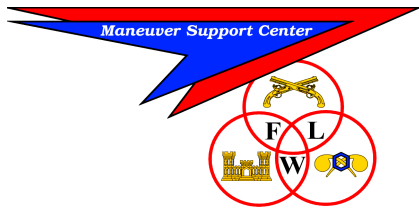
Staff Organization and Operations

Safety Risk Management:

- Identifies actions that could help commanders eliminate, reduce, or minimize risk while maximizing force protection
- Assessment of risk begins with mission analysis. From this analysis, the staff considers the conditions most likely to cause mission failure and accidents, including fratricide
- Commanders are responsible for effectively managing risk

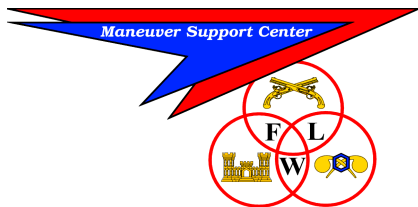


Why Risk Management?



Human Error

**Responsible for
80% of all Army
ground and
aviation accidents**



Historical Basis

Rate* per 1,000 soldiers and percent

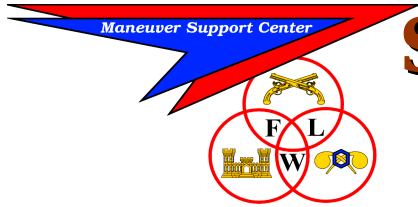
Army	W.W.II 1942-45	Korea 1950-53	Vietnam 1965-72	DS/S 1990-91	NTC FY93 (BLUFOR-GROUND)
Accident	95.57 56%	120.33 44%	154.66 54%	11.14 75%	2.23 3%
Friendly Fire	1.50*** 1%	3.03*** 1%	2.67*** 1%	.68 5%	7.87**** 9%
Enemy Action	73.61 43%	148.56 55%	131.20 45%	2.90 20%	74.17**** 88%

* Per 12 months for W.W.II, Korea and Vietnam; 14 months for DS/S; per rotation NTC.

** Deaths and injuries (ground and aviation) for entire war/operation.

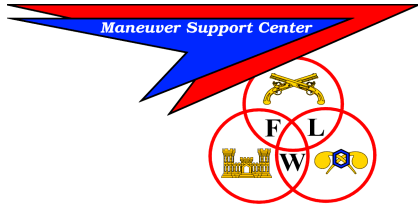
*** Research based estimate (2% of all direct- and indirect- fire losses).

**** Simulated (MILES) direct fire vehicle kills.



System Inadequacies Responsible For Human Error

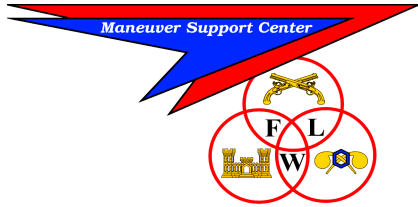
- Support Failure**
- Standards Failure**
- Training Failure**
- Leader Failure**
- Individual Failure**



Support Failure

Lack of:

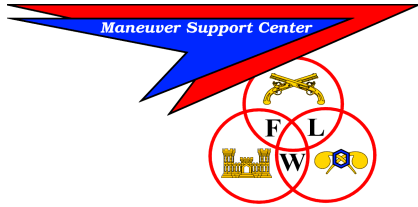
- Personnel
- Equipment or materiel
- Supplies
- Services or facilities



Standards Failure

Standards / Procedures

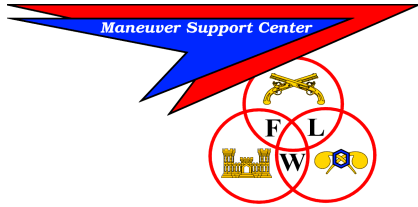
- Not clear
- Not practical
- Nonexistent



Training Failure

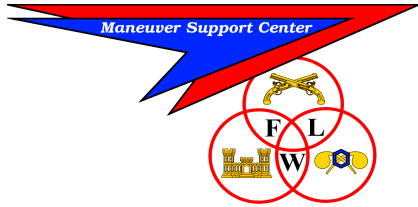
Training was not:

- Correct
- Complete
- Sufficient
- To standard



Leader Failure

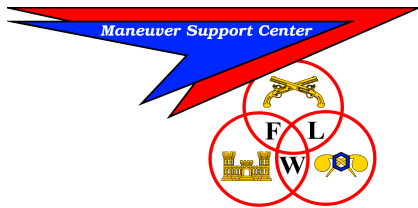
Leadership is not:
ready, willing, or
able to enforce
standards



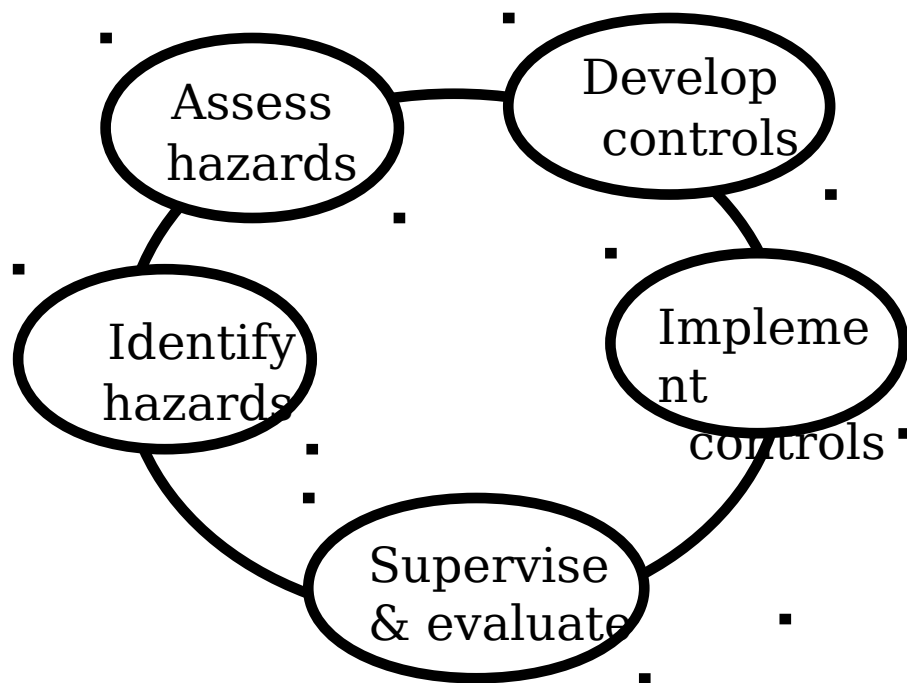
Individual Failure

Individual:

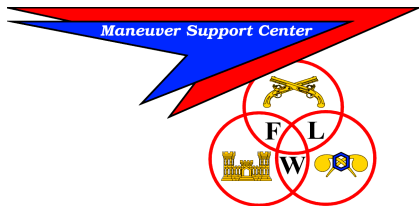
- Did not know standard
- Was trained to standard chose not to follow it
- Lacked self



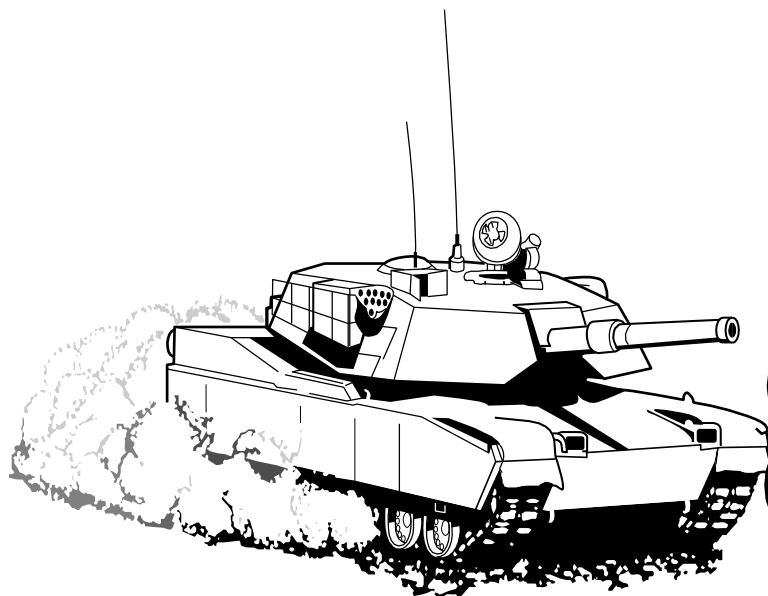
Risk Management Process



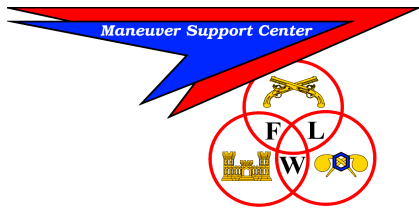
- **Identify Hazards**
- **Assess Hazards**
- **Develop Controls**
- **Implement Controls**
- **Supervise & Evaluate**



Identify Hazards



**Tactical and
Accidental
Risk**



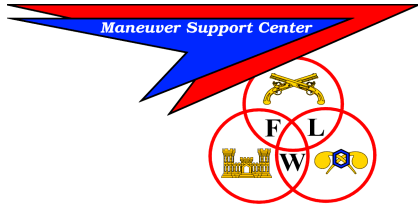
Tools to Help Identify Hazards

- **METT-T**

- Mission
- Enemy
- Terrain and weather
- Troops and equipment
- Time

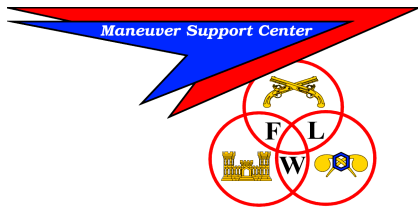
- **METL**

- Mission Essential Task List



Detection Resources and Techniques

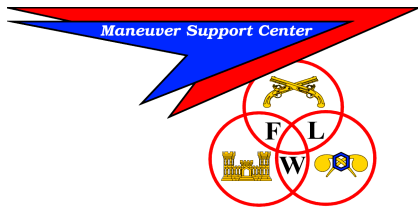
- **Brain Storming**
- **Experts**
- **Publications**
- **Accident
Information**
- **Scenario Thinking**



Probability				
Frequent	Likely	Occasional	Seldom	Unlikely

- **Frequent**

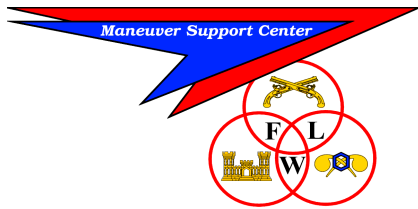
- ◆ **Individual item.** Occurs often in the life of the system.
- ◆ **Fleet or inventory.** Continuously experienced.
- ◆ **Individual soldier.** Occurs often in career.
- ◆ **All soldiers exposed.** Continuously experienced.



Probability				
Frequent	Likely	Occasional	Seldom	Unlikely

● Likely

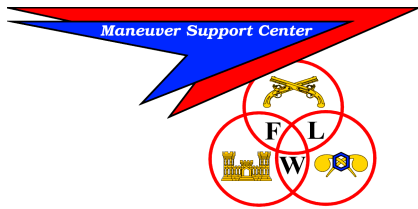
- ◆ **Individual item.** Occurs several times in the life of the system.
- ◆ **Fleet or inventory.** Occurs frequently.
- ◆ **Individual soldier.** Occurs several times in career.
- ◆ **All soldiers exposed.** Occurs frequently.



Probability				
Frequent	Likely	Occasional	Seldom	Unlikely

- **Occasional**

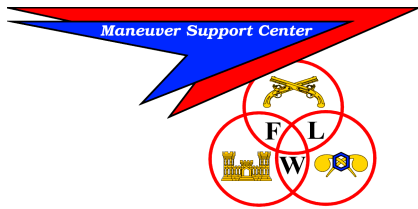
- ◆ **Individual item.** Will occur in the life of the system.
- ◆ **Fleet or inventory.** Occurs several times in the life of the system.
- ◆ **Individual soldier.** Will occur in career.
- ◆ **All soldiers exposed.** Occurs sporadically



Probability				
Frequent	Likely	Occasional	Seldom	Unlikely

● Seldom

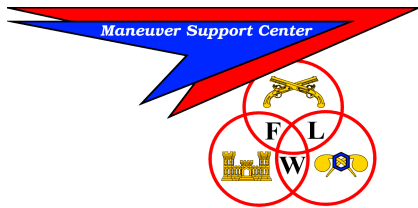
- ◆ **Individual item.** Unlikely but could occur in the life of the system.
- ◆ **Fleet or inventory.** Unlikely but can expect to occur in the life of the system.
- ◆ **Individual soldier.** Unlikely but could occur in career.
- ◆ **All soldiers exposed.** Occurs seldom.



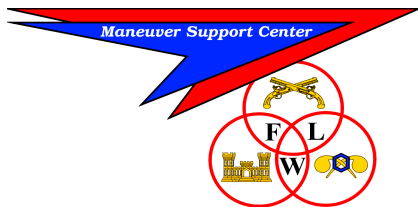
Probability				
Frequent	Likely	Occasional	Seldom	Unlikely

• Unlikely

- ◆ Individual item. So unlikely you can assume it will not occur in the life of the system.
- ◆ Fleet or inventory. Unlikely but could occur in the life of the system.
- ◆ Individual soldier. So unlikely you can assume it will not occur in a career.
- ◆ All soldiers occurs very rarely.

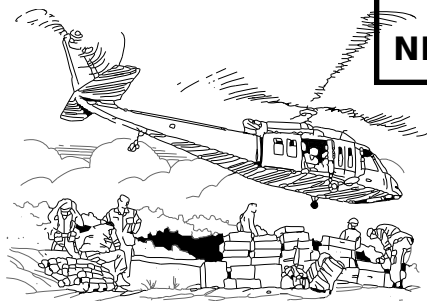


S e v e r i t y	Catastrophic	Death or permanent total disability, system loss, major property damage.
	Critical	Permanent partial disability, temporary total disability in excess of 3 months, major system damage, significant property damage.
	Marginal	Minor injury, lost workday accident, compensable injury or illness, minor system damage, minor property damage.
	Negligible	First aid or minor supportive medical treatment, minor system impairment.

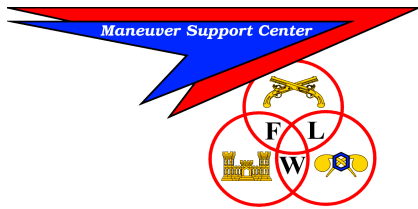


Hazard Assessment

		PROBABILITY				
		FREQUENT	LIKELY	OCCASIONAL	SELDOM	
		UNLIKELY				
		A	B	C	D	
SEVERITY	CATASTROPHIC	EXTREM HIGH	EXTREM HIGH	HIGH	HIGH	MODERATE
	CRITICAL	EXTREM HIGH	HIGH	HIGH	MODERATE	LOW
	MODERATE	HIGH	MODERATE	MODERATE	LOW	LOW
	NEGLIGIBLE	MODERATE	LOW	LOW	LOW	LOW



High and extremely high are presented to the proper commander for acceptance of risk and decision.



Develop Controls and Make Risk Decision

CONTROLS

For each hazard

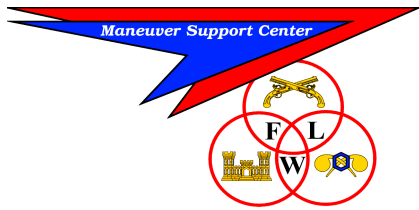
- Implement existing controls if adequate, if not
- Adjust to make adequate or develop new controls

Consider:

- Realism, time, money and resources
- Minimize chance of accidents
- Minimize chance of mission accomplishment

DECISION

- Determine level of residual risk
- Have the *appropriate level* of command *accept* risk

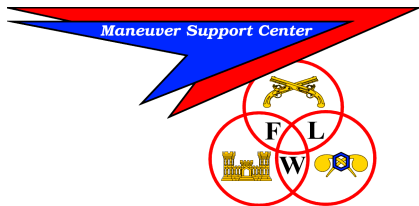


Risk Acceptance Matrix

Level of Unit Conducting Mission

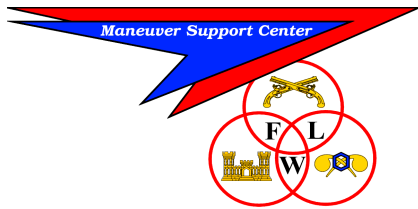
	Division	Brigade	Battalion	Company	Platoon
Extremely High	Corps	Division	Division	Brigade	Brigade
High	Corps	Division	Brigade	Brigade	Battalion
Moderate	Division	Brigade	Battalion	Battalion	Company
Low	Division	Brigade	Battalion	Company	Platoon

and Moderate Corps level missions are approved by the Corps Commander and Extremely High are approved by the higher headquarters of the Corps.



Implement Controls

- ◆ **Standing Operating Procedures (SOP'S)**
- ◆ **Orders**
- ◆ **Briefings and back-briefs**
- ◆ **Training**
- ◆ **Rehearsals**
- ◆ **New equipment**



Supervise

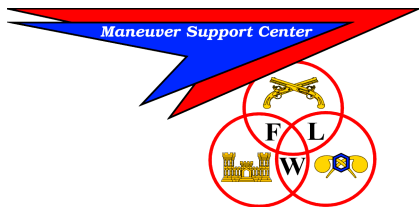
All Soldiers responsible (self-discipline) for:

- ***Performing to standard***
- ***Executing controls***
- ***Recognizing unsafe acts or conditions***

Leaders are also responsible for enforcement

Evaluate

- **Effectiveness of Controls (adjust/update)**
- **Feedback - AAR's**

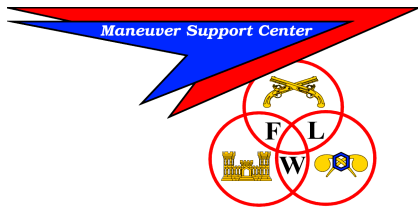


MDMP / Risk Management Steps

Risk Management Steps

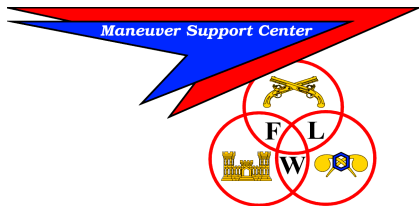
M
D
M
P

	Identify Hazards	Assess Hazards	Develop Controls & Make Risk Decisions	Implement Controls	Supervise & Evaluate
Receipt of Mission	X				
Mission Analysis	X	X			
COA Development	X	X	X		
COA Analysis	X	X	X		
COA Comparison			X		
COA Approval			X		
Orders Production				X	
Preparation				X	X
Execution				X	X



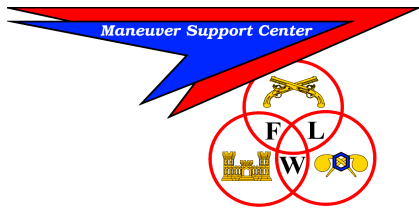
Key Notes

- The objective of managing risk is not to remove all risk, but to eliminate unnecessary risk.
- If the risk cannot be mitigated to an acceptable level, the action should not be executed
- **Leaders should not** expect that all missions will be accomplished with zero defects--free from errors, flaws or less-than perfect performance.
- Minimizing risk--eliminating unnecessary risk--**is the responsibility of everyone in the chain of command.**
- Managing risk is subjective because its basis is individual judgment.



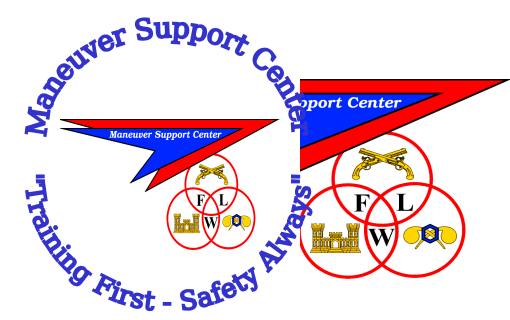
QUESTION S





Break

C ffee



PRACTICAL EXERCISE



PRACTICAL EXERCISE IV

CONDUCT A RAPPELLING EXERCISE

You are to conduct a rappelling exercise along the cliffs of the Roubidoux River, for a platoon size element, on Fort Leonard Wood. The cliff has an eighty-foot shear drop. You have rappel ropes that are 120' long and each member of the platoon has his / her own rope for a Swiss seat and a D ring.

ADDITIONAL INSTRUCTIONS:

- You will conduct the rappelling exercise at 1100 hours.**
- Use today's weather (temperature, rain, shine, or snow)**
- You have been bused out to the rappelling site, you will start identifying the hazards once you are off of the bus.**
- Assume you have a rappel master at the site.**

**DO A RISK ASSESSMENT FOR THIS ACTIVITY:
COMPLETE THE FOLLOWING FOUR STEPS OF THE ASSESSMENT 1) Identify hazards associated with all phases of the rappel. 2) Assess the hazards (initial assessment using the Probability / Severity Matrix). 3) Develop controls to mitigate or reduce the hazards identified in step one. 4) Residual Risk, use the Probability / Severity Matrix to determine your what your residual risk will be.**

Take about 15 minutes to do the above steps.



MODIFIED WORKSHEET FOR PRACTICAL EXERCISE

HAZARD	RISK	CONTROLS
RR		



MODIFIED WORKSHEET FOR PRACTICAL EXERCISE

HAZARD		RISK	CONTROLS	
1) FATAL HOOK-UP	RR	Rappel Master provide classes on hook-up techniques		L
	H	Individual verify hook-up		
		Rappel Master verify hook-up prior to positioning on the cliff		
2) Slipping on the edge of the cliff				L
	M	Use an area on the cliff where firm footing can be obtained or stake out a tarp on the edge of the cliff to provide surer footing		
3) Injuries to belay personnel due to falling rock				L
	M	Have belay personnel wear kevlar helmet & safety goggles		
4) Inexperienced rappeller		Have rappeller yell "ROCK" if one or some should come loose during the descent		L
<p>*These are a few of the hazards that might be identified during the conduct of this exercise. This list may not be all inclusive, but used to show some hazards that might be taken into account for the purpose of</p>				



FATAL, 21 yr old soldier, 5 Apr 99- 1989
Mercury Topaz



Front of 1989 Mercury Topaz- 5 Apr 99

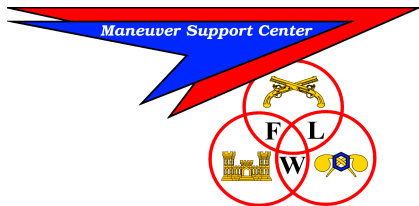




FATAL, 67 yr old driver, 1992 Freightliner, 5 Apr
99

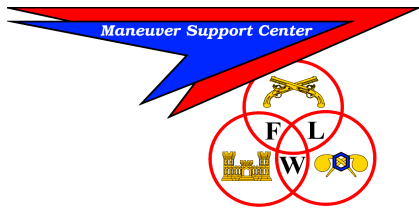


Trailer unit of 1992 Freightliner, 5 Apr 99



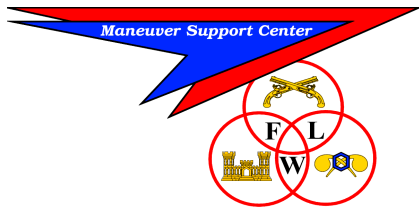
COPPERHEAD FOUND IN MISSOURI

MANSCEN SAFETY



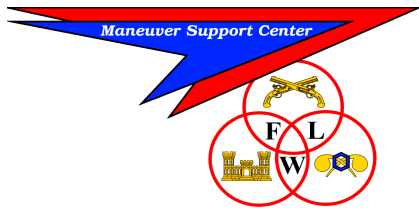
COTTONMOUTH FOUND IN MISSOURI

MANSCEN SAFETY



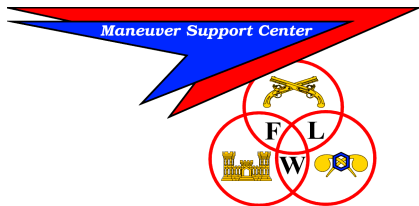
MASSASAUGA RATTLESNAKE FOUND IN MISSOURI

MANSCEN SAFETY



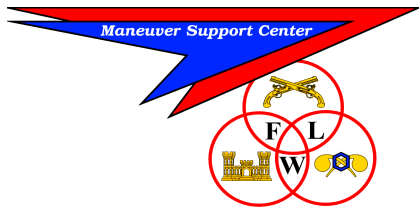
TIMBER RATTLESNAKE FOUND IN
MISSOURI

MANSCEN SAFETY

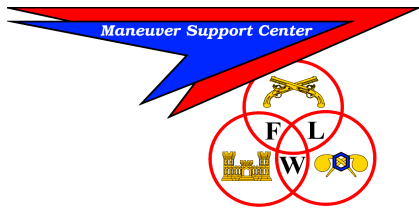


MANSCEN SAFETY

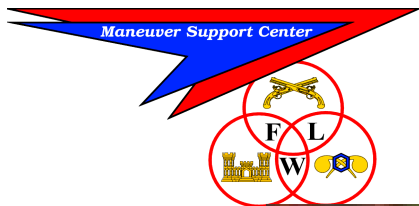
WESTERN PYGMY PATTLESNAKE FOUND IN



POISON IVY

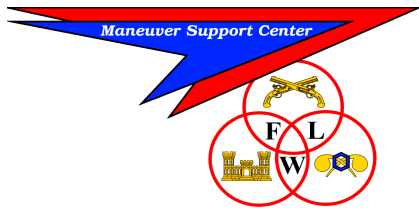


POISON OAK

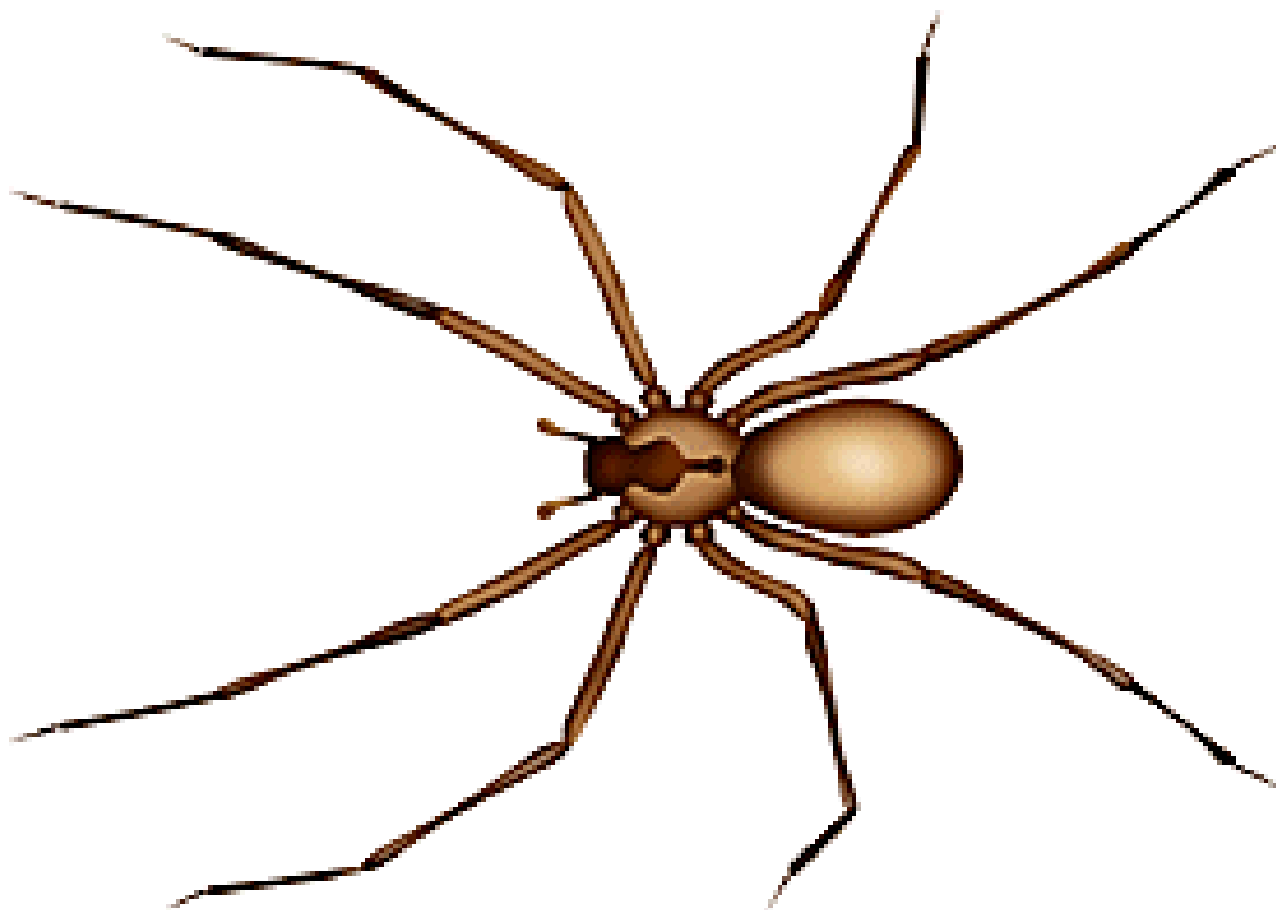


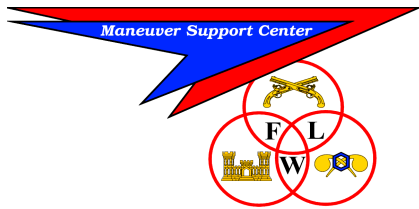
MANSCEN SAFETY

POISON SUMAC



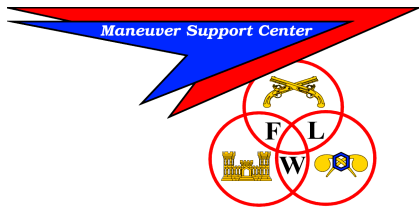
BROWN RECLUSE





BROWN RECLUSE





BLACK WIDOW

